

REMARKS/ARGUMENTS

Summary of Prosecution

Claims 1 to 25 of the present application correspond substantially to claims that were cancelled during prosecution of Applicant's co-pending application Serial No. 10/178,345, for which the issue fee was paid on November 24, 2004 and for which a petition to withdraw the application from issue was granted in correspondence mailed to the undersigned on August 11, 2004.

During prosecution of Application Serial No. 10/178,345, the claims corresponding to the claims presently on file were rejected under 35 U.S.C. §102(b) in view of Applicant's U.S. Patent No. 5,294,076 and 35 U.S.C. §103 (a) in view of Applicant's U.S. Patent No. 5,294,076, U.S. Patent No. 6,371,409 of Steele, U.S. Patent No. 5,115,997 of Peterson and U.S. Patent No. 6,427,943 of Yokomaku. Applicant traversed the grounds for rejection both in a response filed June 12, 2003 and upon filing of the present application.

In the Office Action mailed May 14, 2004, the Examiner has rejected claims 1, 2 and 10 to 18 under 35 U.S.C. §102(b) in view of U.S. Patent No. 5,645,248 of Campbell ("Campbell"). The Examiner has further rejected claims 3 to 6, 8, 9, 19 and 20 to 25 under 35 U.S.C. §103(a) in view of Campbell. According to the Examiner, all of claims 1 to 25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting in view of applicant's pending U.S. Patent Application Serial No. 10/178,345. Accordingly, the Examiner has concluded that if a terminal disclaimer is filed and claim 7 is rewritten in independent form, it would be allowable. Applicant notes that the Examiner appears to have withdrawn the previous rejections based on Applicant's U.S. Patent No. 5,294,076.

Anticipation Rejection

The Examiner has rejected claims 1, 2 and 10 to 18 under 35 U.S.C. §102 (b) as being anticipated by Campbell.

Statement of Law

Anticipation can only be established by a single prior art reference. The test for anticipation requires that all of the claimed elements must be found in exactly the same situation and united in the same way to perform the same function in a single unit of the prior art *Studiengesellschaft Kohke, m.b.H. v. Dart Industries, Inc.*, 762 F.2d 724, 726, 20 U.S. P. Q. 841 at 842 (C.A.F.C. 1984).

Applicant's Submission

Campbell discloses a lighter than air apparatus having a pathway 25 that extends either through the apparatus itself (as shown in Figure 1) or adjacent the apparatus (as shown in Figures

5 and 6). Control surfaces 27a, 27b, 27c and 27d are mounted within the pathway 25 to receive thrust generated by a propeller 56, also mounted within the pathway 25, and accordingly, can be used to direct the apparatus (see Figures 2, 3a and 3b). According to the Examiner, the pusher propeller 56 acts as a boundary layer separation suppression element to shift the airflow separation point rearwardly with respect to the body of the aircraft. Applicant respectfully traverses the Examiner's view in this regard for the reasons given below.

The operation of the pusher propeller 56 of Campbell serves to generate thrust through the pathway and thus cause the apparatus to move in a direction opposite to the direction of air travel through the pathway. In other words, the air is drawn in at the front of the apparatus and exits at the rear of the apparatus. In the view of the applicant, this would tend to create a region of high pressure at the rear of the apparatus and thus assist, and not suppress, boundary layer separation. Unlike the claimed invention, the propeller 56 of Campbell creates a region of high pressure at the rear of the aircraft, thus discouraging laminar airflow close to the outer surface of the aircraft at the rear. As a result, the point at which boundary layer separation occurs is moved further away from the rear of the aircraft. The effect of Campbell's propeller therefore, is in complete contrast to the effect of the boundary layer separation suppression element of the present invention, whose purpose is to create a region of low-pressure at the rear surface of the aircraft. Boundary layer separation suppression is achieved as a result of the low pressure area at the rear of the aircraft keeping the airflow about the rear surface of the aircraft laminar along a greater surface area, as air flows about the surface of the aircraft towards the region of low pressure. In so doing, the point at which boundary layer separation occurs is shifted closer to the rear of the aircraft and consequently, drag on the surface is reduced. The low pressure created at the rear of the aircraft described in the present application causes the airflow to "hug" the outer surface of the aircraft more closely, thus reducing drag and improving performance in the forward direction.

Applicant thus traverses the Examiner's view that Campbell discloses a boundary layer separation suppression element and respectfully requests that the Examiner withdraw the rejection of claim 1. Inasmuch as claims 2 and 10 to 18 depend from claim 1, the applicant requests that the rejection of these claims under 35 U.S.C. §102(b) be similarly withdrawn.

Obviousness Rejection

The Examiner has rejected claims 3 to 6, 8, 9, 19 and 20 to 25 under 35 U.S.C. §103(a) as being unpatentable over Campbell. In the view of the Examiner, the features recited in claims 3 to 6, 8, 9, 19 and 20 to 25 are either found in the cited reference, or would have been obvious to a person skilled in the relevant art.

Statement of the Law

It is the burden of the Examiner to establish a prima facie case of obviousness when rejecting claims under 35 U.S.C. §103. *In re Piasecki*, 745 F.2d 1468, 223 USPQ 758 (Fed. Cir. 1985).

Furthermore, Section 2142 of the Manual of Patent Examining Procedure (MPEP) states:

ESTABLISHING A *PRIMA FACIE* CASE OF OBVIOUSNESS

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on the Applicant’s disclosure. *In re Vaeck*, 947 F. 2d 488, 20 USPQ2d 1438 (Fed. Cir 1991).

Applicant’s Submission

Claims 3 to 6, 8 and 9

The Examiner is of the view that the features described in claims 3 to 6, 8 and 9 would have been obvious variations on the airship of Campbell. Claims 3 to 6, 8 and 9 all depend from independent claim 1 that includes a boundary layer separation suppression element and which the Examiner has determined is anticipated by Campbell. Inasmuch as the Applicant has provided the above-noted reasons why Campbell does not disclose a boundary layer separation suppression element, the Applicant submits that rejection of claims 3 to 6, 8 and 9 is not properly made and requests that the Examiner withdraw the rejection with respect to these claims.

Claim 19

According to the Examiner, the apparatus disclosed by Campbell includes an internal envelope or compartment 34 as well as an external structure 23 formed of material 29. The Examiner further states that inflating at least one sphere of Campbell’s apparatus to 70% of its sea level volume would be obvious to a person skilled in the art in order to avoid overpressurization at the working altitude of the sphere.

Amended claim 19 is directed to a substantially spherical aircraft having an inner envelope containing a buoyant lifting fluid mounted within an outer, load-bearing envelope, the internal volume of the aircraft being defined by the outer envelope and the the internal volume being maintained at an elevated pressure relative to the external, ambient pressure to maintain the substantially spherical shape of the aircraft. This is in contrast to the framework comprising rigid struts 65 that supports the sheeting material 29 of Campbell. Support for this amendment can be found in the specification at page 9, lines 33 to 35, page 10 lines 1 to 21 and in Figures 1a and 1b. Applicant submits that there is nothing in Campbell that suggests that the internal volume of the aircraft that is not occupied by lifting gas be maintained at an elevated pressure. Indeed, since the shape of Campbell’s aircraft is maintained by the rigid framework that supports

the sheeting material, there would be no reason to maintain the internal volume at a pressure that is elevated relative to ambient pressure.

In the view of the Applicant, the features of the airship recited in amended claim 19 are not disclosed in Campbell. Accordingly, the applicant respectfully requests that the Examiner withdraw the rejection of claim 19.

Claims 20 to 25

The Examiner is of the view that the methods recited in claims 20 to 25 would have been obvious to a person skilled in the relevant art having regard to Campbell.

Amended claim 20 is directed to a method for operating a buoyant aircraft wherein the aircraft is substantially spherical and includes an inner, inflatable envelope mounted within an outer, load bearing envelope that defines the internal volume of the aircraft. The method includes the step of maintaining the internal volume at a pressure that is elevated relative to ambient pressure to maintain the spherical shape of the aircraft. As discussed above, the outer envelope of the aircraft disclosed in Campbell is supported by a rigid framework, rather than by pressurised air. Accordingly, applicant respectfully requests that the Examiner withdraw the rejection of claim 20. Inasmuch as claims 21 to 25 all depend from claim 20, the applicant requests that the rejection of claims 21 to 25 also be withdrawn.

35 U.S.C. §112 Rejection

The Examiner has rejected claims 22 and 23 for indefiniteness. Claim 22 has been amended to remove the word "loitering" and Applicant believes that the subject matter of claim 22 and hence, claim 23, is now distinctly claimed.

Provisional Non-Statutory Double Patenting Rejection

Applicant hereby submits completed form PTO/SB25 in accordance with 37 C.F.R. 1.321(c). Applicant also submits, under separate cover, a request for Recordation of Assignment against the present application. The assignment, executed by the sole inventor, assigns all rights in and to the invention described in applicant's co-pending application Serial No. 10/178,345, the parent application of this continuing application, to 21st Century Airships Inc.

Conclusion

Applicant believes that the arguments presented and the claim amendments made herein have placed the application in condition for allowance. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Should any Patent Office Official want to telephone, the call should be made to Mark D. Penner (Registration No. 48,092) at (416) 863-4283.

Yours very truly,

A handwritten signature in black ink, appearing to be 'Mark D. Penner', written over a horizontal line.

Mark D. Penner
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Sept 10/04
Date:

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